

J. S. SMITH.  
RAILROAD CROSSING.  
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959,893.

Patented May 31, 1910.

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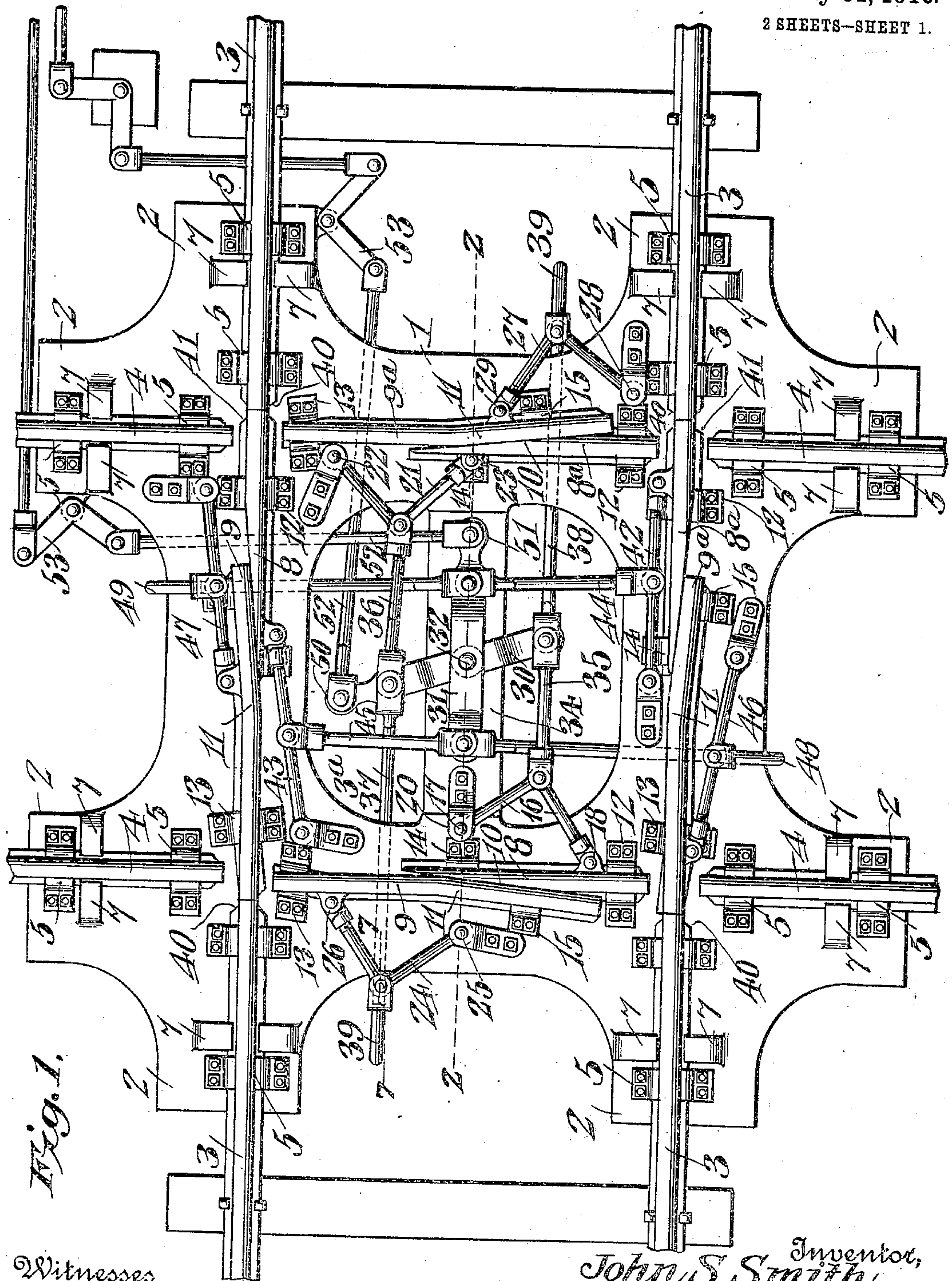


Fig. 1.

Witnesses

Howard D. Cor.  
H. F. Riley

By

John S. Smith, Inventor,

E. G. Siggers

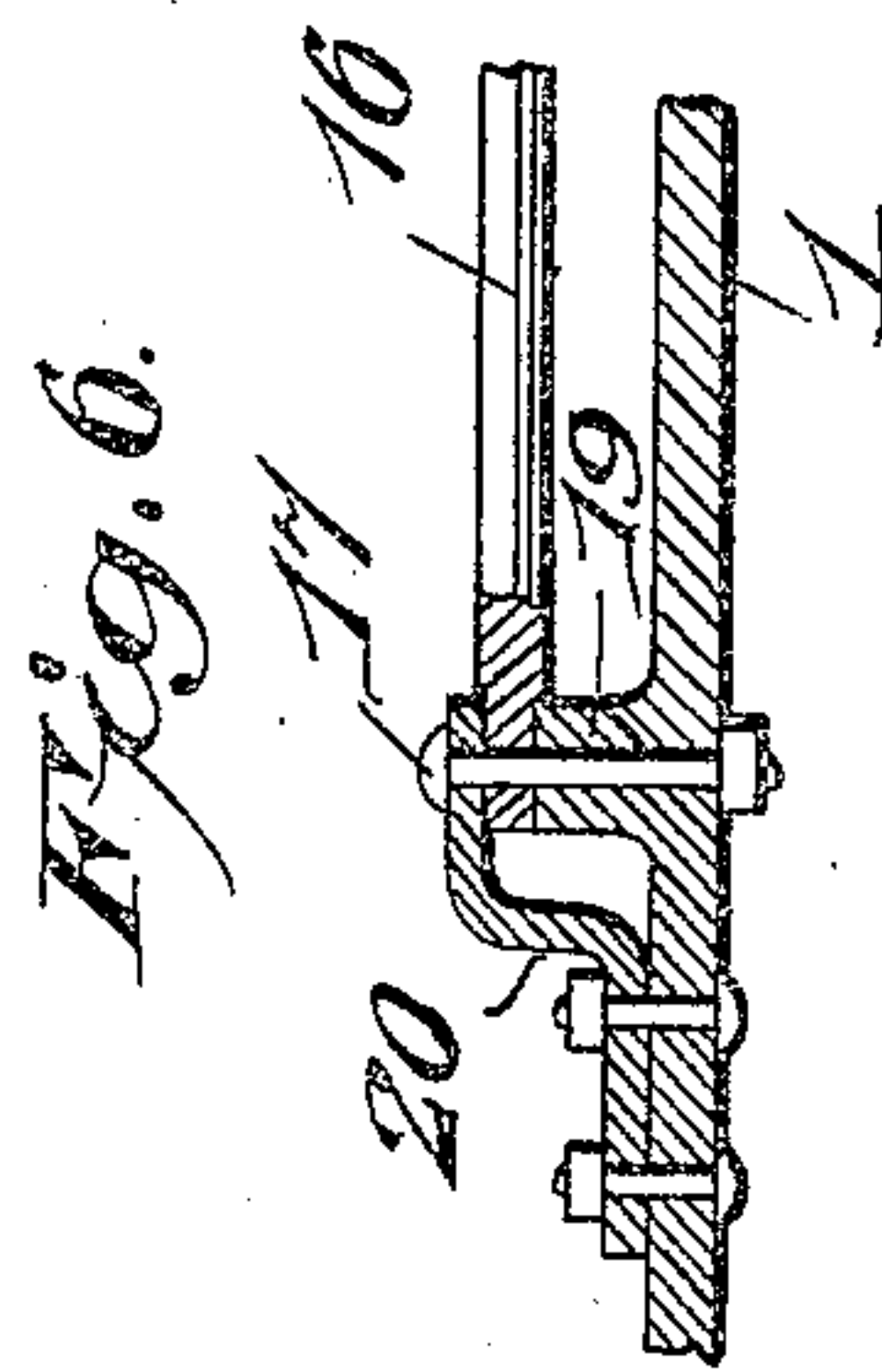
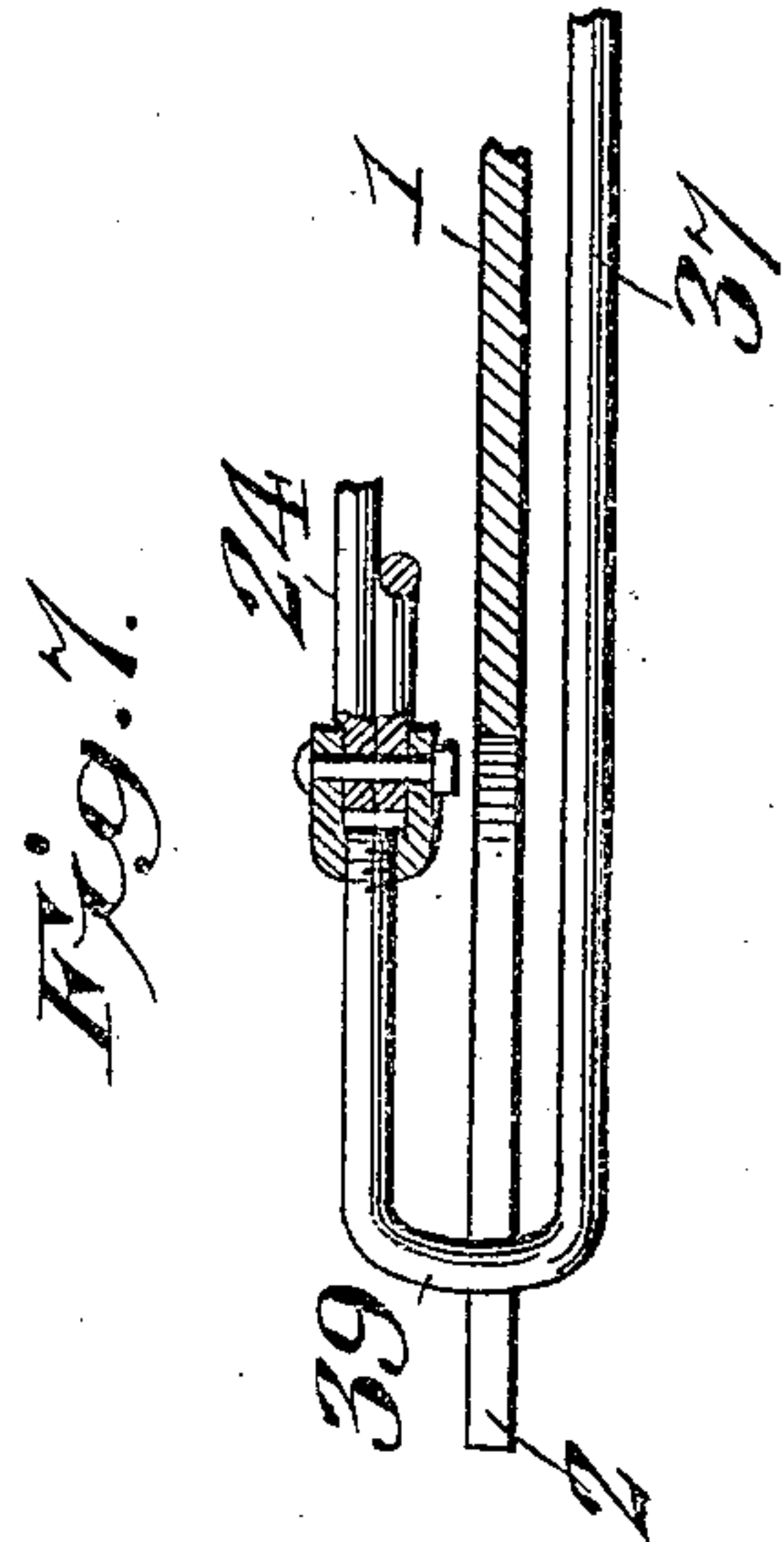
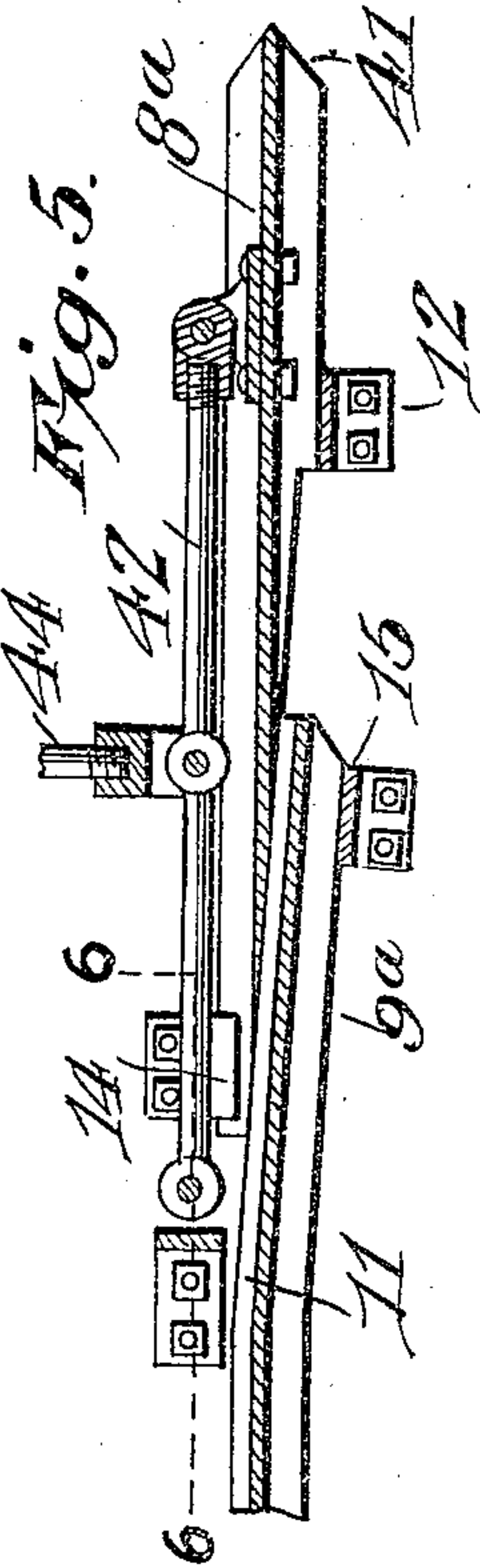
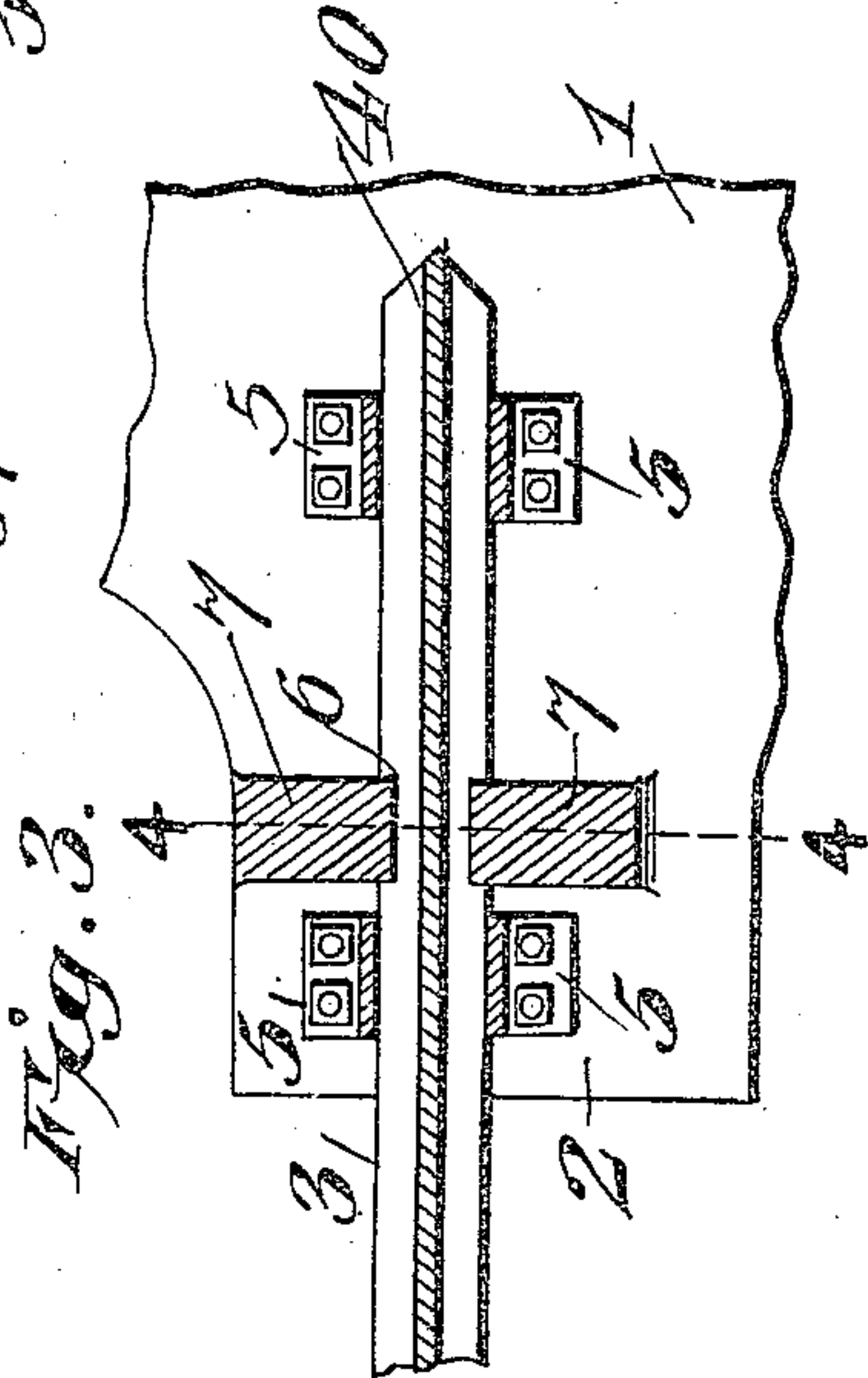
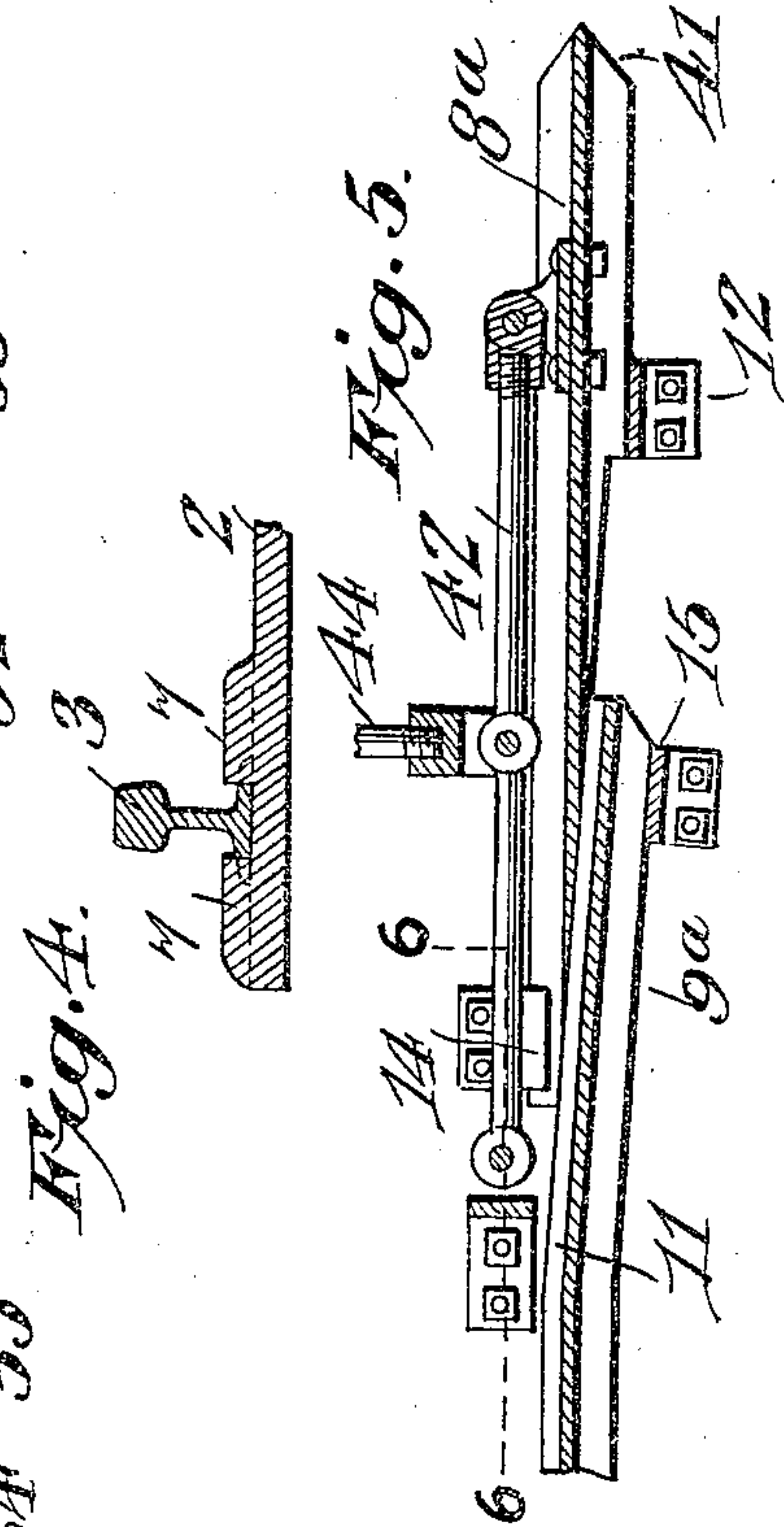
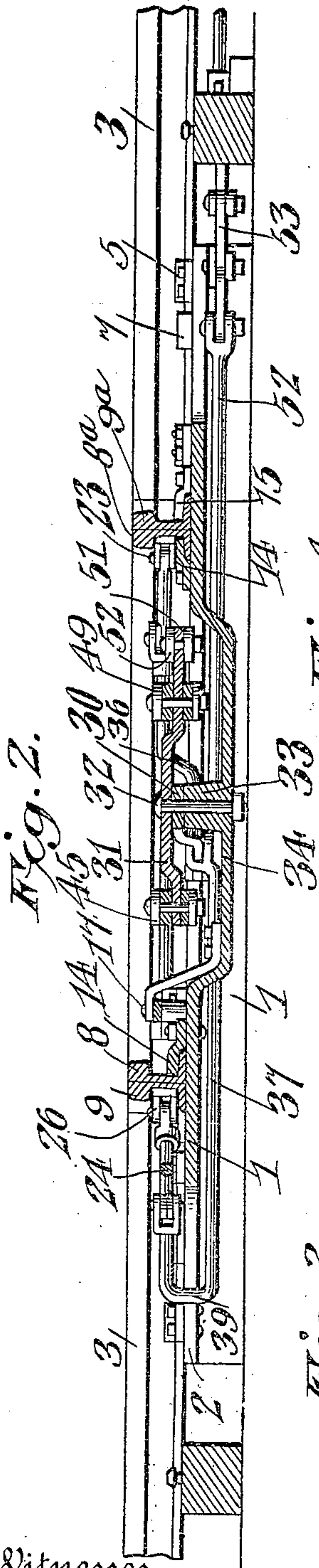
Attorney



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2 SHEETS—SHEET 2.



Witnesses

Howard D. Orr.  
H. J. Riley.

John S. Smith, Inventor,

By

C. G. Figgess.

Attorney



# UNITED STATES PATENT OFFICE.

JOHN S. SMITH, OF FORT WAYNE, INDIANA.

## RAILROAD-CROSSING.

959,893.

Specification of Letters Patent.

Patented May 31, 1910.

Application filed August 31, 1909. Serial No. 515,473.

*To all whom it may concern:*

Be it known that I, JOHN S. SMITH, a citizen of the United States, residing at Fort Wayne, in the county of Allen and State of Indiana, have invented a new and useful Railroad-Crossing, of which the following is a specification.

The invention relates to improvements in railroad crossings.

10 The object of the present invention is to improve the construction of railroad crossings, and to provide a simple, inexpensive and efficient railroad crossing in which the two tracks or lines will be entirely independent of each other, so that the travel over one track will not wear the other.

A further object of the invention is to provide efficient operating mechanism, adapted to form a lock for the movable rail sections of the crossing, whereby said sections will be effectually prevented from becoming displaced through jar or vibration.

Another object of the invention is to provide a railroad crossing of this character, 25 equipped with means for preventing the rails of the two tracks from creeping or spreading, whereby the said rails will be positively maintained in proper position with relation to the crossing.

30 With these and other objects in view, the invention consists in the construction and novel combination of parts hereinafter fully described, illustrated in the accompanying drawings, and pointed out in the claims hereto appended; it being understood that various changes in the form, proportion, size and minor details of construction, within the scope of the claims, may be resorted to without departing from the spirit or 40 sacrificing any of the advantages of the invention.

In the drawings:—Figure 1 is a plan view of a railroad crossing, constructed in accordance with this invention. Fig. 2 is a 45 vertical sectional view on the line 2—2 of Fig. 1. Fig. 3 is a detail horizontal sectional view, illustrating the manner of interlocking the track rails with the base plate. Fig. 4 is a transverse sectional view on the line 4—4 of Fig. 3. Fig. 5 is a detail horizontal sectional view, illustrating the con-

struction of the endwise shiftable rail sections and showing the toggle levers of one of the sections straightened. Fig. 6 is a detail sectional view on the line 6—6 of Fig. 5. 55 Fig. 7 is a detail sectional view on the line 7—7 of Fig. 1.

Like numerals of reference designate corresponding parts in all the figures of the drawings.

1 designates a base plate of approximately rectangular form, designed to be constructed of heavy cast steel, or other suitable material, and provided at each side with spaced extensions 2 and having central openings 3<sup>a</sup>, 60 adapted to lighten the structure. The extensions 2 receive the ends of the rails 3 of one track and the rails 4 of another track, crossing the first track. These rails are arranged at right angles to each other, but 70 they may be disposed at any angle to suit the requirements of a railroad. The rails 3 and 4 are engaged by rail clamps 5 and they are provided in their bottom flanges with opposite recesses 6, which receive spaced lugs 75 7, formed integral with the base plate and disposed transversely of the extensions and interlocking the track rails with the base plate, whereby the track rails are prevented from creeping, spreading or otherwise getting out of position and are maintained in proper relation with each other and with the base plate. The rail clamps 5, which are bolted, or otherwise secured to the upper face of the base plate, engage over the bottom flanges of the rails in the usual manner. 80 The fixed rails of each track terminate short of and are located beyond the longitudinal plane of the rails of the other track, so that each track is entirely independent of the 90 other track and the travel on one line will not wear the rails of the other.

The fixed track rails of each line terminate short of the points of crossing and are adapted to be completed by endwise shiftable rail sections 8 and 9 and 8<sup>a</sup> and 9<sup>a</sup>, 95 which extend beyond the points of crossing and abut against the fixed rails when at the limit of their outward movement. The inner rail sections 8 and 8<sup>a</sup> are tapered longitudinally, being cut away at the outer side at 10 to leave a straight inner edge for the



flange of the car wheels. The other rail sections 9 and 9<sup>a</sup> are angularly bent at an intermediate point at 11, the two portions at opposite sides of the bend being straight.

5 The outer ends of the rail sections are slidable in the guides formed by rail clamps 12 and 13, and the intermediate portions of the rails are guided by clamps 14 and 15. The clamps, which form the guides for the rail

10 sections, loosely receive the same, so that the rail sections are freely shiftable to form continuations of either of the track rails 3 or 4.

As the shiftable rail sections of each track or line of the crossing are similarly constructed, a detail description of the operating mechanism of the rail sections of one track or line is applicable to both. The inner rail section 8 at one side of the track is actuated by an inner toggle composed of

20 levers or members 16, one member being mounted on a fixed pivot 17, and the other member being connected with an ear 18, located at the outer portion of the inner rail section 8. The fixed pivot 17 preferably

25 consists of a bolt, piercing a stud or post 19 formed integral with the base plate, as clearly illustrated in Fig. 6 of the drawings. The pivot bolt 17 is reinforced by a brace 20, angularly bent to form an intermediate

30 upright portion and upper and lower horizontal terminal portions. The upper terminal portion is pierced by the pivot bolt, and the lower terminal portion is bolted to the base plate. The ear 18, which extends

35 horizontally from the web of the rail section 8, has an attaching plate or portion bolted to the rail, as clearly shown in Fig. 5 of the drawings. The inner rail section 8<sup>a</sup> at the opposite side of the track is actuated

40 by an inner toggle 21, composed of two members or levers, connected with a fixed pivot 22 and with an ear 23 of the adjacent rail section 8<sup>a</sup>.

The outer angularly bent rail section 9 is

45 shifted by an outer toggle 24, composed of two levers or members, one being connected with a fixed pivot 25 and the other being pivoted to an ear 26, extending from the outer side of the rail section 9, adjacent to

50 the outer end thereof. The outer toggle 24 is constructed in the same manner as the inner toggle, and the fixed pivot is braced and the toggle member supported in the manner heretofore described. The outer

55 shiftable rail section 9<sup>a</sup> at the opposite side of the track is operated by a toggle 27, composed of two sections or members, one being mounted on a fixed pivot 28, and the other being connected with an ear 29 of the rail

60 section 9<sup>a</sup>.

The toggle levers are operated by suitable levers 30 and 31, mounted on a central pivot 32 and supported by a central stud or post 33, formed integral with and extending

upward from a depressed central portion 34 65 of the base plate. The pivot 32 consists of a bolt piercing the central levers and the stud or post 33, as clearly shown in Fig. 2 of the drawings. The inner toggles 16 and 21 are located at opposite sides of the center 70 and are connected by short rods 35 and 36 with the arms of the central lever 30, and the short rods 35 and 36 extend in opposite directions from the lever 30 and are pivotally connected to the same and to the toggle 75 levers at the adjacent ends of the members thereof. The outer toggles 24 and 27 are also located at opposite sides of the center and are connected with the opposite arms of the central lever 30 by relatively long rods 80 37 and 38. The rods 37 and 38 extend beneath the base plate and have their outer terminals 39 bent upward and backwardly on themselves, as clearly shown in Fig. 7 of the drawings to arrange their outer ends in 85 the plane of the outer toggles. The connecting rods, however, may be bent in any other suitable manner to clear the adjacent portions of the crossing and to connect them with their co-acting parts. When the cen- 90 tral lever is moved in one direction the toggles are straightened and the rail sections are shifted longitudinally to carry their outer ends into engagement with the corresponding fixed track rails. In order to pre- 95 vent snow, ice, or other accumulation from interfering with the crossing, the ends of the rails are oppositely beveled at the webs and base flanges to form tapered portions 40 and 41, the heads of the rails being cut off square 100 to provide central abutting portions. When the tapered portions 41 of the shiftable rail sections are moved toward the tapered portions 40 of the fixed rails, any intervening snow or ice will be crushed and thrown out- 105 ward to prevent it from interfering with the outward movement of the rail sections. When the rail sections are moved outward by the toggles, the latter form blocks for maintaining the rail sections in their ex- 110 tended position and prevent the rail sections from being jarred or vibrated out of place. When the central lever is operated to break the toggles, the rail sections are moved inward and withdrawn from the fixed rail 115 sections.

The inner toggles 42 and 43 are connected by short rods 44 and 45 with the opposite arms of the central lever 31, and the outer toggles 46 and 47 are connected by relatively 120 long rods 48 and 49 with the opposite arms of the lever 31. The levers 31 and 32 are provided with extensions 50 and 51, which are connected with suitable operating means 52 and 53, preferably consisting of rods and 125 bell crank levers and designed to extend to a tower, or other suitable operating point for operating the crossing. It is necessary



to completely withdraw the shiftable rail sections of one track from their engaging position before the shiftable rail sections of the other track can be operated, and when the toggles of one of the tracks or lines of the crossing have been straightened to complete the track, it is impossible for the other shiftable rails to interfere with the completed track, as the bottom flanges of the rails thereof will space the shiftable rails sufficiently from the continuous rails of the crossing to prevent the flanges of the wheels from coming in contact with such track sections.

Having thus fully described my invention, what I claim as new and desire to secure by Letters Patent, is:—

1. A railroad crossing including endwise shiftable rail sections, individual toggles for the said rail sections, each toggle having one member mounted on a fixed pivot and connected at its other member with its rail section, and means for straightening and breaking the toggles to shift the rail sections longitudinally.

2. A railroad crossing including inner and outer endwise shiftable rail sections arranged in pairs, inner toggles each having one member mounted in a fixed pivot and its other member connected with one of the inner rail sections, outer toggles mounted at one end on a fixed pivot and connected at the other end with the outer rail sections, and means for straightening and breaking the toggles.

3. A railroad crossing including inner and outer endwise shiftable rail sections arranged in pairs, inner toggles each having one member mounted in a fixed pivot and its other member connected with one of the inner rail sections, outer toggles mounted at one end on a fixed pivot and connected at the other end with the outer rail sections, a lever located between the pairs of rail sections, and rods connecting the toggles with the said lever.

4. A railroad crossing including inner and outer endwise shiftable rail sections arranged in pairs, inner toggles located at opposite sides of the center of the crossing and mounted at one end on a fixed pivot and connected at the other end with the inner rail sections, outer toggles also located at opposite sides of the center of the crossing and mounted at one end on a fixed pivot and connected at the other end with the outer rail sections, a lever fulcrumed at a point between its ends and located between the pairs of rail sections, and rods extending in opposite directions from the arms of the lever and connected with the toggles.

5. A railroad crossing including a base plate, inner and outer endwise shiftable rail sections guided on the base plate, inner tog-

gles permanently pivoted at one end to the base plate and connected at the other end with the inner rail sections, outer toggles mounted at one end on a fixed pivot and connected at the other end with the outer rail sections, and relatively short and long connections between the lever and the inner and outer toggles.

6. A railroad crossing including a base plate, inner and outer endwise shiftable rail sections guided on the base plate, inner toggles permanently pivoted at one end to the base plate and connected at the other end with the inner rail sections, outer toggles mounted at one end on a fixed pivot and connected at the other end with the outer rail sections, short rods connecting the inner toggles with the lever, and relatively long arms connected with the lever and extending beneath the base plate and having their outer portions connected with the outer toggles.

7. A railroad crossing including combined shiftable inner and outer rail sections arranged in pairs, inner and outer individual toggles connected with and arranged to actuate the inner and outer rail sections, a pair of levers pivoted at the center of the crossing, rods connecting the levers with the toggles for straightening and breaking the latter, and operating means connected with the levers for actuating the same.

8. A railroad crossing including fixed rails, and endwise shiftable rail sections, the adjacent ends of the rails and rail sections being cut off square at the heads of the rails to form flat abutting faces and the webs and base flanges being oppositely beveled to form vertical cutting edges, which extend upward to the heads of the rails.

9. A railroad crossing including a base plate provided with spaced lugs arranged in pairs, rails supported by the base plate and having recesses receiving the lugs, whereby they are interlocked with the base plate, and rail sections coöperating with the said rails.

10. A railroad crossing including a base plate provided at its sides with extension and having a central depressed portion provided with a central integral stud, rails secured to the extensions, shiftable rail sections mounted on the base plate, levers pivotally mounted on the central stud, and connections between the levers and the shiftable rail sections for actuating the latter.

11. In a railroad crossing, the combination with fixed rails arranged at an angle to each other and terminating short of the points of crossing, of endwise shiftable rail sections arranged in pairs and adapted to extend beyond the points of crossing to co-act with the adjacent fixed rails to form a single continuous rail, inner and outer toggles located at opposite sides of each pair of

endwise shiftable rail sections, connecting  
rods extending across the railroad crossing  
from the inner toggle of each pair of end-  
wise shiftable rail sections to the outer tog-  
5 gle of the opposite pair to cause the same  
to move in unison, and means for actuating  
the connecting rods.

In testimony, that I claim the foregoing  
as my own, I have hereto affixed my signa-  
ture in the presence of two witnesses.

JOHN S. SMITH.

Witnesses:

THOS. H. MOORE,

WILLIAM C. MOORE.